Emergency Response and Time Critical
Quality Assurance Sampling Plan
For
Shell Lubes and French Drain Soil Investigation Sampling

Response Location: Dominguez Channel Release

Date: 8/23/11

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Approved by:

This sampling and analysis plan (SAP) has been designed to assist field responders in their preparation for collecting, analyzing, shipping, storing and handling samples collected during an emergency response. The use of this SAP will involve forethought and planning that should help direct the sampling and analytical work. It is meant to be used in the case of emergency responses or time-critical responses when sampling teams may not have the opportunity to write a more thorough sampling plan. Sampling teams should always reference standard quality procedures, standard operations procedures, and standard methods for sampling and analytical guidance.

The development of this SAP will improve the documentation, communication, planning, and overall quality associated with the sampling and analysis by:

1) Encouraging field teams to consider their goals and objectives before the generation of environmental data;
2) Documenting predetermined information in a standardize format;
3) Increasing the communication between sampling personnel and decision makers, and
4) Detailing expectations and objective before samples are collected.

1.0 Introduction and Background. ***Describe the site and specify the geographic boundaries for the site and any specific areas of concern****. What is the problem, what precipitated the response, which agencies and other entities (e.g., contractors) are on site, who has taken the lead for the response and for environmental clean-up actions?*

In response to an oil spill that occurred along the Alameda Corridor Transportation Agency (ACTA) right of way (ROW) located in Wilmington, CA, Crimson Pipeline proposes to investigate and sample soil from safely accessible areas of ACTA's french drain system, and from the areas adjacent to railroad ROW, and within the Shell Lubes Plant.

<u>French Drain Investigation</u>

The removal of the ballast material and the french drain investigations are proposed to start along the western and eastern french drain lines located at the northeast corner of the Shell Lubes property (Figure 1). Ballast material will be removed in approximate 100' sections. Once the french drain system has been exposed, a determination will be made as to the presence of crude oil and the potential impact. Where crude oil is visually identified, the french drain system will be removed. Soil samples will be collected from accessible areas beneath the french drain system using manual sampling methods that will include drive samplers and hand augers. Soil samples along the western and eastern side of the french drain system adjacent to the railroad track will be collected to confirm the vertical limits of impact surrounding the blockage area. Soil samples will be collected from safely accessible locations as described below.

- Soil samples will be collected adjacent to the existing french drain and/or utility piping.
- One soil boring will be advanced every 20 feet along the french drain system where impact is reported.
- One soil boring will be advanced where known utility laterals intersect the french drain system.
- Soil samples will be collected from 0.5 foot and 2.0 feet below the bottom of the french drain at each boring location. If impacts are evident in the two-foot sample, deeper samples will be attempted.
- Collect field PID measurements for VOCs from all soil samples.
- Sample locations and depths may be modified and will ultimately be determined by encountered field conditions.
- Where the bottom of the french drain consists of exposed concrete or cemented ballast larger than 2 inches in diameter, no sample will be collected and a visual assessment will be conducted to ascertain the need for removal based on evidence of oil.

<u>Shell Lubes Plant Investigation</u>

The Shell Lubes Plant contains a storm drain catch basin located at the northeast corner of the facility. Portions of the ACTA ROW are situated at higher elevations than the Shell Lubes Plant. Surface runoff of oil and water onto the Shell property resulted from a blockage in the french drain system that caused fluid to rise to the surface and migrate to the Shell property (Figure 2). The run-off apparently flowed to a storm drain catch basin located at the northeast corner of the Shell Lubes Plant.

2.0 Objectives. *Brief statement on the general project objective. What is the overall goal or objective? Specific objectives are summarized in Table D.*

Gain an understanding of the Total Extractable Petroluem Hydrocarbons (TEPH), volatile organic compounds (VOCs), semi volatile organic compounds (SVOCs), and their associated concentrations existing in the french drain system and surrounding soil. VOC and SVOC analyses will be selected based on positive TEPH results. No sample will be analyzed for VOCs and SVOCs where TEPH is not detected above laboratory reporting limits. Samples exhibiting higher concentrations of TEPHs will generally be analyzed for VOCs and SVOCs by EPA method 8260B and 8270C, respectively. The sample exhibiting the highest TEPH concentrations will also be analyzed for metals by EPA method 6010B. Based on analytical results, the laboratory analyses and frequency of sample analyses may be modified.

2.1 Data Use Objectives. (How will the data be used?)

Data that are generated will be used: (Select Appropriate Boxes)

1 ☐ To be compared with RCRA or other regulator limits on waste.

2 X To profile a waste material for off-site disposal or treatment.

3 **X** To assist with determining the presence or absence of a hazardous material above an available detection or quantification level.

4 ☐ To assist with determining the general hazard classification of a material.

5 **X** To document the concentration of specific analytes of concern.

6 ☐ To document the character of a waste material for on-site treatment.

8 ☐ As definitive confirmatory data for confirmation of non-definitive (screening) data.

9 ☐ To document container and containment integrity, compatibility and proper segregation.

10 ☐ Other objectives:

2.2 Sampling Objectives. (What are you proposing to do?)

1 ☐ Containers will be visually inspected and monitored with appropriate direct reading instrumentation.

2 ☐ Collect a grab sample from all containers or piles.

3 ☐ Collect a grab sample from selected containers or piles.

4 ☐ Collect representative samples from all containers or piles.

5 ☐ Collect representative samples from selected containers and pipelines.

6 X Other Objectives: Collect soil samples to assess the vertical and horizontal impact within the Shell Lubes Plant and french drain system along the ROW

2.3 Data Type

In general, data type and data needs should be decided prior to data generation. The data can be generally divided into three categories: definitive methodology data (generally data generated using standardize methods), non-definitive methodology data (also referred to as screening data) and screening data with at least 10% definitive conformation. The generation of definitive data is preferable, however in emergency and time critical situations where definitive data is not available, non-definitive data should be generated. Note that the data type is not an indicator of precision, accuracy or documentation completeness, or quality. Reported data should be verified (by a party other than the laboratory) as meeting specific quality control and data category requirements by following a verification or validation procedure. Refer to the START or ERS Quality Assurance Plans for specific quality parameters and requirements.

Check appropriate box(es):

1 ☐ Screening data will be generated. The data by itself may not be verifiable. **Due to the time critical situation, the data must be reported and may be used to make decisions.**

2a ☐ Screening data with at least 10 percent definitive data will be generated. Data using non-definitive analytical methodologies will be generated. **Due to the time critical situation, the data must be reported and may be used to make decisions prior to generation of definitive data.** The screening data by itself may not be verifiable. Screening data will be evaluated and reported with definitive data at a later time.

2b ☐ Screening data with 10 percent definitive data will be generated. Data using non-definitive analytical methodologies will be generated. **Data will not be reported until it is evaluated against definitive data.**

3a ☐ Definitive data will be generated. The sampling and analysis must be done on an emergency basis. **Due to the time critical situation, the preliminarily data must be reported and used for comparison without validation. Analytical data packages will be required**. **However, since the data was not used or intended for decision making, validation of the data package will not be performed.** (Document generic DQO deviation in Section 4.4)

3b ☐ Definitive data will be generated. The sampling must be done on an emergency basis. **Due to the time critical situation, preliminary data must be reported and may be used to make decisions without validation. The generated analytical documentation packages will be reviewed and validated. Qualified data will be reported after validation.**

3c **X** Definitive data will be generated. **Full documentation will be required. Analytical data packages will be reviewed and validated prior to reporting.**

2.4 Contaminants of Concern

Specify the potential hazardous substances or characteristics of concern (COC), proposed analytical method, proposed action levels and available reporting limit are summarized in Table A.

Table A
Contaminants of Concern

Potential HOC	Proposed Analytical Method	Proposed Action Level	Available Reporting Limit
All types	Visual inspection and inspection with appropriate direct reading instrumentation.	Detection	Varies
Volatile Organic Compounds	Performed by ELAP EPA 8260B	Not applicable	As low as possible / matrix interferences may be evident 10 to 1,000 ppb
Semi Volatile Organic Compounds	Performed by ELAP EPA 8270C and EPA 8270C SIMs PAH	Not applicable	As low as possible / matrix interferences may be evident 10 to 1,000ppb
TPH gas C-4 to C-12	Performed by ELAP 8015B	Not applicable	~50 ppb
TPH hydrocarbon chain C-13 to C-40	Performed by ELAP 8015B CA DHS	Not applicable	~50 ppb
Other Data Collection Activity (non-chemical) *(circle all that apply)*	GPS Visual Interviews Magnetometer Other Geophysical Modeling Photography File Search		

3.0 Sampling and Analysis Methodologies

3.1 Inspection and Sampling Approach

Indicate the drum inspection approaches to be used (select approach)

1 □ Comprehensive (All containers, containment and controls are to be inspected)

2 □ Judgmental (The containers, containment and controls to be inspected will based on professional judgement) Document any deviation from the generic DQO in Section 4.4.

3 □ Random (A random number of containers, containment and controls will be inspected). Document any deviation from the generic DQO in Section 4.4.

Indicate the field screening sampling approaches to be used (select approach)

4 □ Comprehensive (All containers will be sampled for field screening)

5 □ Judgmental (All containers with compromised integrity will be sampled and a percentage of intact containers will be sampled for field screening)

6 □ Random (A percentage of all containers will be randomly sampled for field screening)

7 □ Representative (A percentage of all containers with compromised integrity will be sampled and a percentage of intact containers will be sampled for field screening)

Indicate the sampling and analysis approaches to be used (select approach)

8 □ Judgmental (A percentage of containers with compromised integrity will be randomly sampled for analysis)

9 □ Representative (A percentage of all containers will be randomly sampled for analysis)

10 □ Biased (Selected containers will be sampled based on professional judgment, inspection and screening information)

Comments: Lab analysis performed on this project and applicable to Section 3 above; will be utilized as waste characterization and waste profiling data for the purpose of this section.

3.2 Container Inspection and Field Analysis Equipment

Field analysis equipment requirements are summarized in Table B1.

Table B1
Container Inspection and Field Analytical Equipment

Analysis Equipment Specify the field analytical procedures to be used. Select the appropriate boxes.	**Model**	**Analyses**	**Matrix**	**Resource/Contractor**
Container Inspection and Vapor Monitoring Equipment				
X Organic Vapor Monitor (OVM with PID)	Mini Rae 3000	VOC (0 to 15,000ppm)	Soil Screening	Stantec Consulting Corp./ WGR Southwest
☐ Combustible Gas Meter				
☐ Organic Vapor Analyzer (FID)				
☐ Multiple Gas Analyzers				
X Other	Equivalent Equipment			Stantec Consulting Corp./ WGR Southwest
Field Analytical Equipment				
☐ X-Ray Fluorescence (XRF) Device [for metals]				
☐ Lumex (XRF) Mercury Instrument				
☐ Oil Analysis Kit [for oils]				
☐ Immunoassay Test Kits [pesticides, oils, chlorinated substances]				
☐ Chlor-N-Soil/Chlor-N-Oil test kits[PCBs, chlorinated substances]				
☐ pH Meter				
☐ Other field test kits [for pesticides]				
☐ Radiation Meter				
☐ Other				

3.3 Field Sampling Equipment

Field equipment requirements are summarized in Table B2.

Table B2
Field Sampling and Decontamination Equipment

Analyses and Matrix	Sampling Equipment	Dedicated or Reusable	Decontamination Solution	Resource/ Contractor
TEPH/VOC SVOC/Metal in Soil	Drive Sampler/Hand Auger	Reusable	Non-Phosphate Detergent / Liquinox	Stantec Consulting Corp.
TEPH/VOC SVOC/Metal in Soil	Geo Probe	Reusable	Non-Phosphate Detergent / Liquinox	Geo Probe Subcontractor
TPH / SVOC/Metals	8 ounce Jars	Dedicated	N/A	Test America Analytical
VOCs	Encore Sampler	Dedicated	N/A	Test America Analytical

3.4 Field Methods and Procedures

3.4.1 Sample Locations. Indicate the sampling location name, describe location, and indicate rationale for each sample location chosen.

Railroad Right of Way Investigation Area

Soil samples will be collected from accessible areas beneath the french drain system using manual sampling methods that will include drive samplers and hand augers. Soil samples along the western and eastern side of the french drain system adjacent to the railroad track will be collected to confirm the vertical and lateral limits of impact surrounding the blockage area.

Shell Lubes Plant Property

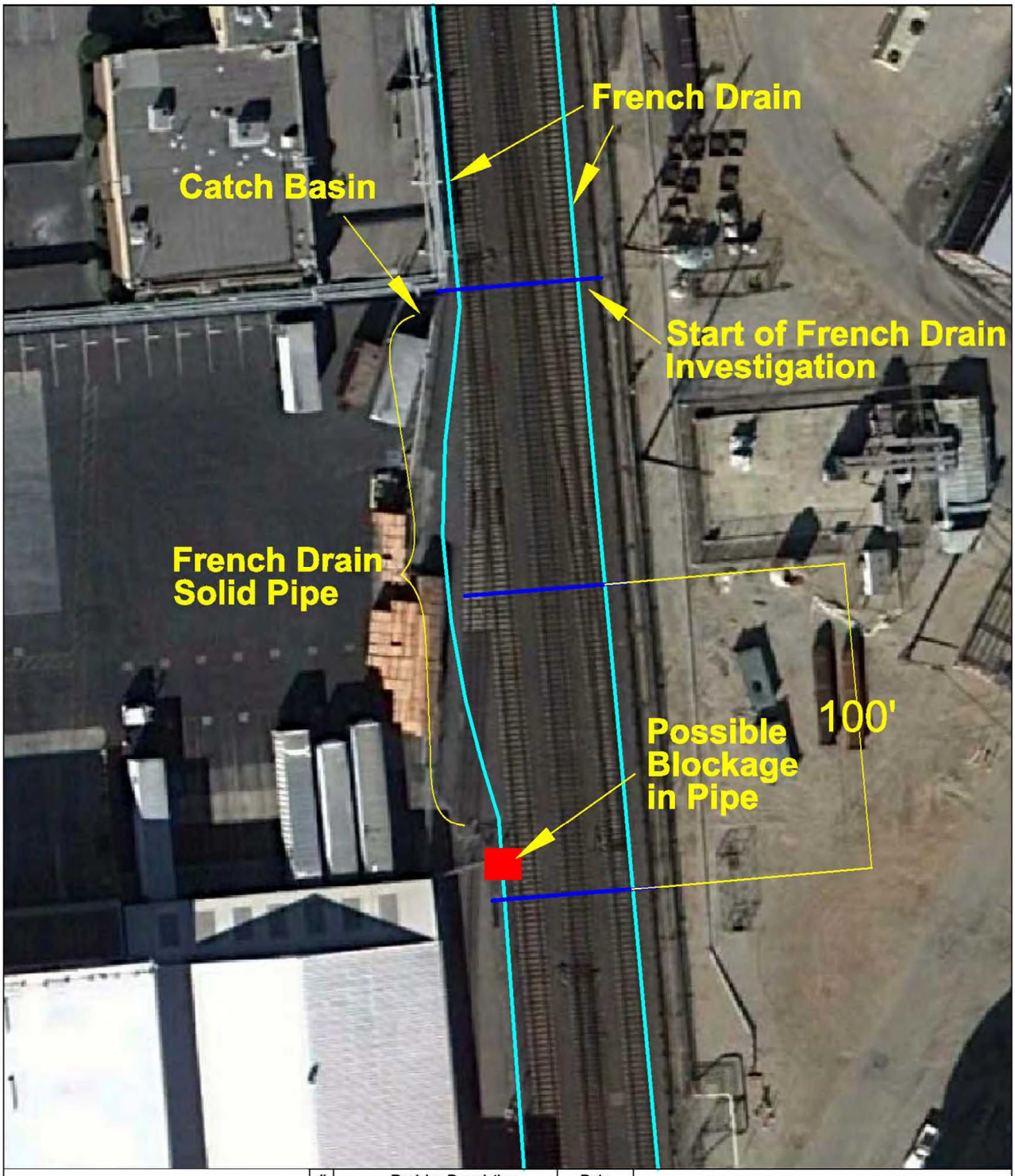
Investigation soil borings in non-asphalt areas will be conducted in areas of visible oil staining.

Samples will be collected from crude oil-stained areas that are safely accessible and approved by the Shell Lubes Plant. Soil samples will be collected with a Geoprobe direct push type rig or using manual sampling methods that will include drive samplers and hand augers.

- Borings transects will be placed in non-asphalt areas along the estimated flow line of the oil (Figure 2) at intervals of approximately 50 feet where safely accessible.
- The center borings within each transect will be placed at the lowest elevation along the surface flow line with step-out borings oriented perpendicular to the flow line along
- each transect and spaced at approximately 30 feet intervals where visual impact is present.
- Soil samples will be collected at 1 foot and 5 feet bgs. If impact is evident, deeper samples will be attempted.
- Borings transects will be placed in non-asphalt areas along the estimated flow line of the oil (Figure 2) at intervals of approximately 50 feet where safely accessible.

Sketch a map of the site and any areas of concern. Indicate sampling locations or sampling areas in Figure 1 and 2 included names. Use a scale that is meaningful for the sampling work covered under this plan. Sketch out where the samples will be collected and include sampling location names. Attach a local map to this plan if it is available.

Figure 1 and 2 **Sample Location Maps** **Presented Below**



North

Scale: 1" = 40'

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#	Revision Description	Date
1	Change Figure Number	4/25/2011

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Created by: VM | Date: 4/11/2011

Client: **Crimson Pipeline, L.P.**
Dominguez Spill

Figure No.: Figure 1 - Site Map - Track Area

North

Scale: 1" = 250'

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#	Revision Description	Date
1	Change Figure Number	4/25/2011
2	Add 100'-Sections	6/24/2011
3	Correct spelling	7/20/2011

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Created by: VM | Date: 4/11/2011

Client: **Crimson Pipeline, L.P.**
Dominguez Spill

Figure No.: Figure 2 - Site Map - Shell Plant & Collection Area

3.4.2 Sample Labeling and Documentation

All samples collected will be labeled in a clear and precise way for proper identification in the field and for tracking in the laboratory. The samples will have preassigned, identifiable, and unique sample I.D. numbers. At a minimum, the sample labels will contain the following information in indelible ink: sample I.D., sample location, date of collection, analytical parameter(s), and method of preservation.

Each sample will be given a unique sample I.D. number for reference on maps, chain of custody documentation and field logs. The I.D. will designate whether the general location of the sample, the media sampled and a unique number identifying the sample location and depth. The nomenclature for each sample will be identified as follows:

ZV-XXY-ABB-CC

Where:

Z = Activity Phase
'N' for Investigation phase
'C' for confirmation phase

V = Duplicate sample
If sample is a field duplicate the letter 'V' will be inserted. Otherwise this space is left blank.

X = General Location
'YL' for Youngstown Lateral
'EFD' for East side French Drain
'WFD' for West side French Drain
'SD' for Storm Drain Collection
'SL' for Shell Lubes Plant
'DC' for Dominguez Channel
'AC' for ACTA ROW

Y = Media
'W' for water
'S' for soil

A = Sample Point Type
'T' for transect
'H' for hand auger
'G' for grab sample
'B' for boring sample

BB = Unique transect, or boring number (i.e. 01, 02….10, 11, etc.)

CC = Sample depth (i.e. 0.5, 2.5, 5.0 feet, etc.)

Trip blanks and equipment blanks will be labeled with the nomenclature of Z-XX-Y-AABBCC. Where:

Z = Activity Phase
N for investigation
C for confirmation

Y = Media
W for water or aqueous sample

AABBCC = Sample Date
AA = month, BB = day, and CC = year of sample collection

Chain of Custody Record

Chain-of-custody record forms are used to document sample collection and shipment to laboratories for analysis. All sample shipments for analyses will be accompanied by a chain-of-custody record. A copy of the form is found in Attachment C. Form(s) will be completed and sent with the samples for each shipment. Proper distribution of the forms is found in the *Instructions for Sample Shipping and Documentation* guidance document. If multiple coolers are sent to a single laboratory on a single day, form(s) will be completed and sent with the samples for each cooler.

The chain-of-custody form will identify the contents of each shipment and maintain the custodial integrity of the samples. Generally, a sample is considered to be in someone's custody if it is either in someone's physical possession, in someone's view, locked up, or kept in a secured area that is restricted to authorized personnel. Until the samples are shipped, the custody of the samples will be the responsibility of the sampler. The sampling team leader or designee will sign the chain-of-custody form in the "relinquished by" box and note date, time, and air bill number. The sample numbers for all rinsate samples, reference samples, laboratory QC samples, and duplicates will be documented on this form. A copy will be retained in the master files.

Custody Seals

Custody seals demonstrate that a sample container has not been tampered with or opened. The individual in possession of the sample(s) will sign and date the seal, affixing it in such a manner that the container cannot be opened without breaking the seal. The name of this individual, along with a description of the samples / packaging, should be noted in the field book.

All sample documents will be completed legibly in ink. Any corrections or revisions will be made by lining through the incorrect entry and by initialing the error. These include the logbooks, the chain of custody forms, this field QASP and any other tracking forms.

Field Logbook

Because sampling situations vary widely, field notes will be as descriptive and inclusive as possible; anyone reading the entries should be able to reconstruct the sampling situation from the recorded information. Language within field notes will be objective, factual, and free of inappropriate or ambiguous terminology. All field personnel are to date and sign any data entries. All field documentation will be retained.

Sampling field data sheets include information on specific activities related to collection of a single sample. The sampling field data sheets will be completed in the field at the time of the sample collection by the sampling personnel. A Sampling Field Data Sheet is provided in Attachment B.

The field data recorded at the time of sample collection provides unambiguous identification of each sample. At a minimum, the following information will be recorded during the collection of each sample:

- Sample location (depth (in feet) and description)
- Site or sampling area sketch showing sample location and measured distances or GPS coordinates.
- Sampler's name
- Date and time of sample collection
- Designation of sample as composite or grab
- Type of sample
- Type of sampling equipment used
- Field instrument readings and calibration
- Field observations and details related to analysis or integrity of sample
- Preliminary sample descriptions
- Sample preservation
- Sample identification numbers and any explanatory codes, and chain-of-custody form numbers

In addition to the sampling information, the following specific information will also be recorded in the field notes:

- Time of arrival/entry on site and time of site departure
- Personnel on site
- Summary of any meetings or discussions with contractor, state, local, or federal agency personnel
- Procedural deviations and/or personnel changes
- Calibration records

3.4.3 Sample Containers and Preservatives

Containers and preservatives are summarized in Table C.

Table C
Containers and Preservatives

Analyses and Matrix	Container Type (per sample)	Preservation Method	Holding Time
TEPH / SVOC / Title 22 Metals	8 ounce jar	Chilled to 4 degrees C	14 days
TEPH / SVOC / Title 22 Metals	Brass or Stainless Steel Sleeve	Chilled to 4 degrees C	14 days
VOCs by EPA Method 5035/8260	TerraCore or Encore	Chilled to 4 degrees C/ Frozen w/in 48 hours	14 days

3.5 Analytical Methods and Procedures

The analytical methods per sample and sample location are presented in Table D. General field QC considerations and requirements are presented in Table E.

Table D Sample Locations and Data Objective Summary					
Sampling Locations and Identifiers should correspond to location indicated on Figure A					
Sample Location(s) (should match with 3.3.1 and Figure 1 and 2)	**Sample Identifiers**	**Analytical Method Refer to Table A**	**Data Use Objective(s) Refer to Section 2.1**	**Data Category Refer to Section 2.3**	**Samples Matrix**
West and East side of French Drain along Railroad ROW	French Drain (FD)	EPA8015B, EPA 8260, EPA 8270, Title 22 Metals	See Section 2.1	Definitive	Soil
Shell Lubes Plant	Shell Lubes Plant (SL)	EPA8015B, EPA 8260, EPA 8270, Title 22 Metals	See Section 2.1	Definitive	Soil

Add additional pages if necessary.

3.6 Quality Assurance and Quality Control

General field QA/QC considerations and requirements are presented in Table E.

Table E
Quality Control Samples and Data Quality Indicator Goals

QC Sample	Number/Frequency	Data Quality Indicator Goals & Evaluation Criteria	Comments/Exceptions *Site specific remarks:*
FIELD SPECIFIED QA/QC			
Background or reference sample	At least one sample should be collected from an area believed to be unaffected by source contamination.	Source samples should be at least 3 times background.	Surface soil: up-slope. Surface water: upstream. Ground water: up-gradient.
Field Blanks	Equipment blank will be collected in lieu of field blanks (Section 10 of SAP)	NA	Water only.
Travel Blanks	1 set per cooler	Source samples should be at least 3 times the blank.	Volatile analytes, water only.
Equipment Blanks	1 per sampling day, per matrix, per method	Source samples should be at least 3 times the blank.	Only when the use of decontaminated non-dedicated equipment is involved.
Field Duplicates or Replicates	1 per SDG, per matrix, per method	35% RPD[2]	As needed by sampling objectives. The procedure for collecting duplicate samples can greatly effect the reproducibility.
Performance Standards	1 per project, per matrix, per method	75 -125 %R[3]	If available.
SELECTED LABORATORY QA/AC			
Method Blank	1 per SDG, per matrix, per method Selected Laboratory QA/QC will be performed as per Test American's Laboratory quality Assurance Program Manual included as Appendix A of the Sampling and Analysis Plan / Quality Assurance Project Plan dated May 3, 2011.	Stds and samples should be at least 3 times the blank.	Mandatory.
Matrix Spike	1 per SDG, per matrix, per method on field designated sample.	75 -125 %R	Designate sample on COC.
Matrix Spike Duplicate or Replicate	1 per SDG, per matrix, per method on field designated sample.	≤50 RPD for organics; ≤20 RPD for metals	Designate sample on COC.
Reference Standards	1 per SDG, per matrix, per method	75 -125 %R	If available.
Internal Standards	All samples	50 -200 %R	All GC/MS and some GC analyses only.
Laboratory Control Standards	1 per SDG, per matrix, per method	75 - 125 %R	Per method for organic analyses.

[1] SDG = Sample Delivery Group (Maximum 20 samples)
[2] RPD = Relative Percent Difference
[3] %R = Percent Recovery

4.0 Project Organization and Responsibilities

4.1 Schedule of Sampling Activities

Sampling activities are summarized in Table F.

Table F
Proposed Schedule of Work For Soil Sampling Activities

Activity	Start Date	End Date
French Drain Sampling.	When all personnel involved can agree to schedule	Intended to be several weeks
Shell Lubes Plant Sampling.	When all personnel involved can agree to schedule	Intended to be several weeks

Add additional pages if necessary.

4.2 Project Laboratories

Laboratories used for this project are summarized in Table G.

Table G
Laboratories

Lab Name/ Location	Methods
Test America Analytical / Irvine, CA	EPA 8015B / EPA 8260 B / EPA 8270C/ Title 22 Metals
ATL / Signal Hill, CA	EPA 8015B / EPA 8260 B / EPA 8270C/ Title 22 Metals

Add additional pages if necessary.

4.3 Project Personnel and Responsibilities

Personnel and responsibilities are summarized in Table H.

Table H Sample Team(s) Personnel	
Personnel (Agency)	**Responsibility**
Department of Fish & Game OSPR	Witness
EPA	Witness
Los Angeles County Department Public Works	Witness
Mark Reese, Beacon Energy Inc.	Project Coordinator
Jim Dewoody, Stantec	Investigation Coordinator
Melissa Baernstein, Stantec	Health & Safety
Kenny Toro, Stantec	Sampler
Mitch Bohn, Stantec	Sampler
Randy Couture, Stantec	Sampler
Bill Senner WGR Southwest	Field Supervisor and QA/QC

Add additional pages if necessary.

4.4 Modification or Additions to the Generic Data Quality Objective for Emergency and Time Critical Sampling

Project specific modification to the generic DQO statements for this are summarized in Table I. Also indicate which DQO step corresponds to the addition or modification.

Table I DQO Modifications and Additions	
Additions or Modifications to the Generic DQO Output Statements	**DQO Step**

Add additional pages if necessary.